

Claims

What is claimed is:

- [c1] A method for manufacturing a printed circuit bonded to a heat sink comprising:
adhering a conductive layer to a first surface of a bond film using a first adhesive layer to produce a circuit substrate, wherein the adhering is achieved by partially activating the first adhesive layer such that the conductive layer is tack-bonded to the bond film;
processing the circuit substrate to produce a flexible printed circuit; and
laminating the heat sink to a second surface of the bond film of the flexible printed circuit using a second adhesive layer.
- [c2] The method of claim 1, wherein the adhering of the conductive layer to the first surface of the bond film is performed in a temperature range of from about 100 to about 180 degrees Celsius and a pressure range of from about 50 to about 1000 pounds per square inch.
- [c3] The method of claim 1, wherein the laminating of the heat sink to the second surface of the bond film is performed in a temperature range of from about 220 to about 300 degrees Celsius and a pressure range of from about 50 to about 1000 pounds per square inch.
- [c4] The method of claim 1, wherein a composition of the first adhesive layer is different from a composition of the second adhesive layer.
- [c5] The method of claim 4, wherein the compositions are selected to have different bonding temperatures.

- [c6] The method of claim 1, wherein the processing comprises
imaging the conductive layer with a circuit pattern;
etching the imaged conductive layer to form circuit areas and etched areas, the
circuit areas having predefined exposed areas and unexposed areas;
coating the etched areas and the predefined unexposed circuit areas with a
protective dielectric material; and
coating the predefined exposed circuit areas with an antioxidant layer to produce
the flexible printed circuit.
- [c7] The method of claim 6, wherein the antioxidant layer comprises one selected from
a polymer coating and a metal plating.
- [c8] The method of claim 1, wherein the conductive layer comprises a copper foil.
- [c9] The method of claim 1, wherein the adhering is performed in a pressed sheet
manner.
- [c10] The method of claim 1, wherein the adhering is performed in a roll-lamination
fashion.
- [c11] The method of claim 1, wherein the first adhesive layer is coated on the first
surface of the bond film prior to the adhering.
- [c12] The method of claim 1, wherein the first adhesive layer is coated on the
conductive layer prior to the adhering.
- [c13] The method of claim 1, wherein the second adhesive layer was coated on the
second surface of the bond film prior to the adhering of the conductive layer to the
first surface of the bond film.

- [c14] The method of claim 1, wherein the second adhesive layer was coated on the second surface of the bond film after the adhering of the conductive layer to the first surface of the bond film, and prior to the laminating the heat sink to the second surface of the bond film.
- [c15] The method of claim 1, wherein the second adhesive layer is coated on the heat sink prior to the laminating the heat sink to the second surface of the bond film.
- [c16] A method for manufacturing a printed circuit bonded to a heat sink comprising:
adhering a conductive layer to a first surface of a bond film using a first adhesive layer to produce a circuit substrate;
processing the circuit substrate to produce a flexible printed circuit; and
laminating the heat sink to a second surface of the bond film of the flexible printed circuit using a second adhesive layer,
wherein a composition of the first adhesive layer is different from a composition of the second adhesive layer such that the second adhesive layer is not fully activated at a temperature used in the adhering the conductive layer to the bond film.
- [c17] A method for manufacturing a flexible printed circuit comprising:
placing a release sheet between a first bond film and a second bond film;
adhering a first conductive layer to a first surface of the first bond film to produce a first circuit substrate, the adhering is performed such that the first conductive layer is tack-bonded to the first bond film;
adhering a second conductive layer to a first surface of the second bond film to produce a second circuit substrate, the adhering is performed such that the second conductive layer is tack-bonded to the second bond film; and
removing the release sheet.

- [c18] The method of claim 17, wherein the adhering the first conductive layer to the first bond film and the adhering the second conductive layer to the second bond film are performed in a temperature range of from about 100 to about 180 degrees Celsius and a pressure range of from about 50 to about 1000 pounds per square inch.
- [c19] The method of claim 17, wherein the adhering the first conductive layer to the first surface of the first bond film is by using an adhesive layer coated on the first surface of the first bond film prior to the adhering.
- [c20] The method of claim 17, wherein the adhering the first conductive layer to the first surface of the first bond film is by using an adhesive layer coated on the first conductive layer prior to the adhering.
- [c21] The method of claim 17, wherein the adhering the second conductive layer to the first surface of the second bond film is by using an adhesive layer coated on the first surface of the second bond film prior to the adhering.
- [c22] The method of claim 17, wherein the adhering the second conductive layer to the first surface of the second bond film is by using an adhesive layer coated on the second conductive layer prior to the adhering.
- [c23] The method of claim 17, wherein the adhering the first conductive layer to the first bond film and the adhering the second conductive layer to the second bond film are performed in a roll-lamination fashion.
- [c24] The method of claim 17, wherein the adhering the first conductive layer to the first bond film and the adhering the second conductive layer to the second bond film are performed in a pressed sheet manner.

- [c25] The method of claim 17, further comprising processing the first and the second circuit substrates each to produce a flexible printed circuit.
- [c26] The method of claim 25, wherein the processing is performed prior to the removing the release sheet.
- [c27] The method of claim 25, wherein the processing comprises
imaging the first and the second conductive layers each with a circuit pattern;
etching the first and the second conductive layers each to form circuit areas and etched areas, the circuit areas having predefined exposed areas and unexposed areas;
coating a protective dielectric material on the etched areas and the predefined unexposed areas on both the first and the second conductive layers; and
coating an antioxidant on the predefined exposed areas on both the first and the second conductive layers.
- [c28] The method of claim 25, further comprising laminating each of the flexible printed circuits to a heat sink.
- [c29] The method of claim 28, wherein the laminating of the heat sink to the second surface of the bond film is performed in a temperature range of from about 220 to about 300 degrees Celsius and a pressure range of from about 50 to about 1000 pounds per square inch.